Remarks:

Applicants wish to thank the Examiner for finding persuasive the Applicants' arguments in the After Final Response and withdrawing the respective rejections noted in the Final Rejection.

Claims 1, 3, 4, 6, 7, 9-14 and 16-20 are pending in the current application. Claims 1, 3, 4, 6, 7, 9-14 and 16-20 are rejected under 35 U.S.C. § 103(a) based on new grounds of rejection (i.e., a new reference in combination with an old reference). The applicants respectfully traverse the new grounds of rejection.

Rejection under §112:

Claims 3, 6, 9 and 16 have been rejected under 35 U.S.C. §112 as indefinite. Claims 3, 6, 9 and 16 have been cancelled without prejudice by the virtue of this amendment. Therefore, the current grounds of rejection under section 112 are moot.

Rejection under §103:

Claims 1, 3, 4, 6, 7, 9-14 and 16-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,339,434 (the West reference) in view of U.S. Patent No. 5,818,416 (the Hwang reference).

Claims 1, 4, 7, 14 are amended and new claims 21 and 22 are added by the virtue of the current amendment. Therefore, claims 1, 4, 7, 10-14, and 17-22 are pending.

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. MPEP §2143 provides:

> "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."

Respectfully, neither of the above three basic criteria is met. The Applicant, therefore, traverses the obviousness grounds of rejection because a prima facie case of obviousness cannot be established, unless all the noted three criteria are met.

The first criterion is not met as the Examiner has failed to refer to any portion of the cited references that suggest a motivation for combining the two references. The Applicant has reviewed the two cited references (i.e., West and Hwang) thoroughly and has not been able to find any suggestion or teaching either expressed or implied in the cited prior art references for combining or modifying the devices disclosed therein.

In fact, referring to FIG. 7B of West and FIG. 1 of Hwang, the two references teach away from one another. That is, West suggests the input of image signal (i.e., input pixels) into line memory 80 first and then feeding the output from each line memory to be multiplexed with other memory 80 outputs (see FIG. 7B, col. 5, lns. 25-43). Hwang suggests the opposite. That is, the video input is first fed to an analog digital converter 200 and the output of the analog digital converter 200 is then fed to line memories 500 (see FIG. 1, col. 3, lns. 5-12 and lns. 55-65).

As such, since the two references teach away from one another, there is no motivation for the combination of the two. Furthermore, it is well settled that the mere fact that references *may* be combined or modified does not render the resultant combination obvious, unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

In this case, there is no suggestion for combining or modifying West in the direction of Hwang in either of the references. Neither there is any clear motivation on the part of a person of ordinary skill for modifying or combining West with Hwang.

Thus, the examiner is invited to point out such suggestion to combine or modify more specifically by citing to portions in each reference that suggest that West can be modified in light of the teachings of the Hwang to correct keystone distortions in the manner recited in claim 1.

Pursuant to MPEP §2144.03, while "[t]he rationale supporting an obviousness rejection may be based on common knowledge in the art or "well-known" prior art . . . [i]f the applicant traverses such an assertion the examiner should cite a reference in support of his or her

position. When a rejection is based on facts within the personal knowledge of the examiner . . . the facts must be supported, when called for by the applicant, by an affidavit from the examiner."

Therefore, if the Examiner has based his rejection on "common knowledge" or "well known" prior art, Applicant respectfully requests that the Examiner cite a reference or alternatively provide an affidavit in support of his rejection as required under MPEP §2144.03. Otherwise, the Examiner is requested to point out the portions in each reference that suggest the desirability or motivation for combining the two with more specificity.

The second criterion for establishing a prima facie case of obviousness is not met either, because there is no expectation that the combination of the two references can be successful in producing the result contemplated by the Examiner. Particularly, in rejecting the claims, the Examiner has referred to FIGS. 1, 11, and 13 of the West reference and FIG. 1 of the Hwang reference, contending that said figures in combination teach or suggest the claimed invention.

The cited figures disclose two distinct and complex systems that include components designed to function in a particular order in relation to one another. As such, even if a person skilled in the art had knowledge of the teachings of the two references, he would not have been able to determine how to combine the two to achieve the result produced by the present invention, as claimed.

For example, the Examiner contends that it would have been obvious for a person of ordinary skill in the art to use the Line Memories shown in FIG. 1 of the Hwang reference to modify the West reference. The Examiner has failed to point out, however, which one of the embodiments disclosed in West can be modified, or even how such modification is possible considering the specific electrical design and signal processing relationships disclosed in both the West and Hwang references.

Respectfully, the Examiner has seemingly selected various electronic components from each reference without regard to the relationship between the components and the manner each component operates in its specific environment in order to establish a prima facie case of obviousness. That is, the Examiner has used a mix and match technique in an attempt to force a conclusion not supported by either of the references.

As an example, referring to Line Memory 500 in FIG. 1 and column 3, lines 5-18 and 55-65 of Hwang, analog color picture input signals are converted in an analog to digital converter 200 to digital signals. Changing the "sampling frequency" of the analog digital converter 200 results in adjusting the horizontal size of the image (see col. 3, lns. 13-15).

In contrast, referring to FIG. 4 of the present application, the claimed apparatus and process of the present invention is patently distinguishable from the above teaching of Hwang because the line memory 204, as claimed, receives and stores each line of output image generated from the format converter 202 after the horizontal size generator 201 has fed a corresponding horizontal output size to the format converter 202 for each line of the output image.

Each line stored in memory 204 is processed and formatted by format converter 202 based on a "horizontal output size being generated . . . based on a horizontal input size, a vertical size, and a desired keystone factor of said input image", as claimed in Claim 1. Conversely, in West (col. 5, lns. 26-43) image data is formatted and processed, after it has been stored in Line Memory 80.

Accordingly, the West reference teaches away from the claimed invention by disclosing an opposite order of image processing and storage. Further, the Hwang reference teaches away from the claimed invention by suggesting an image size adjustment process based on a change in "sampling frequency" of an analog to digital converter 200. In contrast, the present invention as recited in Claim 1, claims adjusting the image size based on three parameters, namely: a horizontal input size, a vertical size, and a desired keystone factor of the input image, neither of which are disclosed, suggested or taught by either of the cited references.

Further, referring to FIG. 1 of the Hwang reference, frequency multiplier 100, analog-to-digital converter 200, and memory section 500 cannot reach the keystone distortion correcting apparatus of the claimed invention. The multiplexed read/write operation of a set of line memories respectively connected to digitized RGB components achieves a size adjustment without regard to the keystone factor and keystone offsets for correcting keystone distortion. Furthermore, there is no motivation in West for adapting these line memories to correct keystone distortion, and it is apparent that the necessary adaptation would be extensive.

The examiner is further correlating the sync signal generator of the instant invention with a frequency multiplier 100 of Hwang. The frequency multiplier 100 is, however, applied for image size conversion for a fixed display device and cannot be used to scale horizontal size according to each successive line. The output image, according to the claimed invention, is a converted image that can be used in a display system directly, i.e., without modifying any adjustable optical components such as those required in a conventional image projector discussed in Hwang.

'A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.' In re Rijkaert, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Since, the teachings of West and Hwang are inconsistent with those of the claimed invention, as amended, it is highly doubtful that one of ordinary skill in the art would have combined the teachings of West with that of Hwang to implement the claimed invention. Particularly, nothing in the prior art references themselves suggests the advantage to be derived from combining the teachings. (See In re Sernaker, 217 USPQ 1, 6 (Fed. Cir. 1983)).

The third criterion for proving obviousness is also not met. That is, the West reference neither alone nor in combination with the Hwang reference teaches or describes all elements of the claimed invention. Neither reference either alone or in combination discloses, teaches, or suggests "a horizontal size generator", "a format converter", "a sync generator" or "line memory" with the characteristics disclosed above such that "a horizontal size generator that receives N horizontal sync signals of an input image and generates N corresponding horizontal output sizes, each of said output sizes being generated at each of said sync signals based on a horizontal input size, a vertical size, and a desired keystone factor of said input image; and a format converter that receives said input image and generates an output image, by converting the received input image based on the horizontal input size so that each line of said output image has a horizontal output size corresponding to a successive one of the N horizontal output sizes generated by said horizontal size generator; a sync signal generator that generates a read control signal based on said N horizontal sync signals and said horizontal out put sizes; and a line memory that stores each line of said output image generated from said format converter and outputs said each stored line of said output image according to said read control signal, where N represents a total number of lines of said output image.

The Examiner is invited to point out the relevant portions of the cited references that teach such components and relationships more specifically.

In summary, the cited prior art references cannot be combined to teach the claimed invention because the two systems disclosed in West and Hwang are independently complex and cannot be easily modified to complement or work with each other. Even if the two systems can be combined, the resultant combination will not function to address the problem solved by the present invention, as discussed above. Further, no reasonable justification is provided in the Office Action as to how such combination is possible. Since obviousness may not be established by hindsight reconstruction or conjecture, it is respectfully submitted that the 103 rejection is improper.

Furthermore, it is respectfully maintained that the cited references are non-analogous prior art and therefore improper 103 references. The West reference is directed to an image scaling circuit for increasing or decreasing the size of a sampled image to match a fixed resolution display. Particularly, this reference teaches resizing frames of image data at high speed in flat panel displays by a real number scale factor (see Abstract, col. 2, lns. 12-15 and 24-30). Thus, the West reference is directed to a field of endeavor related to resizing image data in flat panel displays. The problem solved by the West reference is to allow scaling based on real number scale factors, as opposed to integer scale factors.

The Hwang reference, on the other hand, not once refers to using a keystone factor for adjusting the size of the image.

The criteria for determining whether prior art is analogous are twofold. First, one must determine whether the art is from the same field of endeavor, regardless of the problem addressed. Second, if the reference is not within the field of the inventor's endeavor, one must determine whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

In contrast to the West and Hwang references, the field of endeavor of the claimed invention is directed to correcting Keystone distortion, which results in a trapezoidal display of a

nominally rectangular picture. This distortion is produced, generally, when a picture is projected abnormally to the screen for example when the projector is aligned above or below a plane that horizontally intersect the screen. According to the present invention, digital correcting means instead of physical means, such as optical lenses, are utilized to correct this particular type of distortion.

Thus, both the field of endeavor and the problems solved by the present invention are different from those disclosed in the prior art references. Accordingly, it is respectfully requested that the rejection of the pending claims to be withdrawn, because the cited references are non-analogous art.

For the above reasons, the invention as recited in the claims 1, 4, 7, 14, 21 and 22 should be in condition for allowance. Claims 10-13 and 17-20, respectively depending on claims 1, 4, 7 and 14 should also be in condition for allowance, by the virtue of being dependent upon allowable independent claims.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein; and no amendment made was for the purpose of narrowing the scope of any claim, unless Applicants have expressly argued herein that such amendment was made to distinguish over a particular reference or combination of references.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California,

telephone number (213) 623-2221 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,
Lee, Hong, Degerman, Kang & Schmadeka

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